# AMERICAN INTERNATIONAL UNIVESITY-BANGLADESH

**Faculty of Science and Technology**

# Pastry Shop Management System

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**Course Title :** INTRODUCTION TO DATABASE.

**Section :** [O]

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# Table of Contents


| Topic Discussion | Page Number | Marks Distribution |
|---|---|---|
| Introduction | 3 | |
| Scenario Description | 4 | |
| ER Diagram | 5 | |
| Normalization | 6 | |
| Schema Diagram | 14 | |
| Table Creation | 15 | |
| Data Insertion | 20 | |
| Query Writing | 25 | |
| Relational Algebra | 29 | |
| Conclution | 30 | |

# Introduction

A database management system (DBMS) is a system software for creating and managing databases. The DBMS provides users and programmers with a systematic way to create, retrieve, update and manage data.

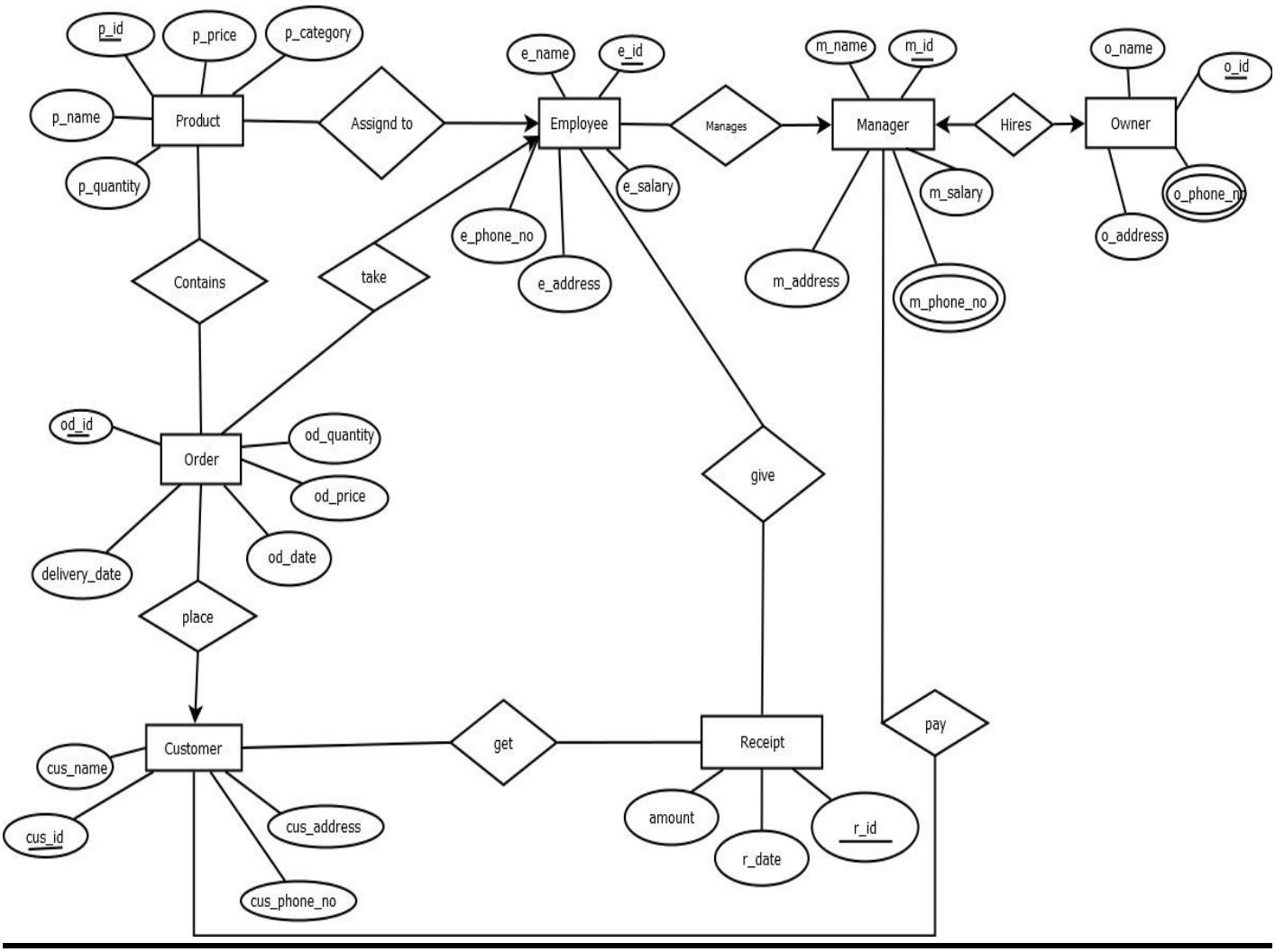
Our project pastry shop management system was created by using the concept of DBMS. A pastry shop is a confectionery shop that specializes in baking pastries for its clients. Foods that are served here are not meant to satisfy the greater hunger but to satisfy the tastebuds of the foodies with a sweet tooth. A pastry shop which combines dazzling environment with wonderful cuisine, is the ideal venue for frequent hangouts and personal meetups.

The project “Pastry Shop Management System” is designed to record the information of the manager, employees, customers and products. It is built to facilitate and to make the best use of data by keeping records in database. Through this project, we can easily deal with the daily management system of a pastry shop. For this project we created some tables. We drew an ER diagram showing the tables and their work as an overview. The basic aim of the project is to record, search, delete and insert data using SQL statements. Normalization and schema diagram are also the key elements of this project. Basically, the purpose of the project is to handle all the managements of a pastry shop.

# Scenario Description

Baker Boys, a pastry shop located near Brooklyn Nine-Nine uses an integrated pasty shop management system which holds records of products made by the pastry shop. The management system of pastry shop stores owner's name, address and multiple phone numbers. The owner of pastry shop hires one manager who manages the employees. Manager can hire many employees. The manager is identified by Unique id, name, address, salary. Multiple phone number of manager is also stored. Every employee has unique id, name, phone number, salary, address. One Employee assigned to many products. To identify a product the system also stores product unique id, name, price, category, quantity. One Customer can place many orders. Customer has unique id, name, address, phone number. The Order have different id, quantity, price. Also order dates and delivery dates are stored. Many orders contain many products. One Employee can take many orders and give a receipt to the customers. Receipt has unique id, amount, date. Customers get the receipts and pay the manager. That's all the information that pastry shop management system uses on a daily basis.

# ER Diagram


p_id
p_price
p_category
p_name
Product
p_quantity
Assignd to
e_name
e_id
Employee
e_salary
e_phone_no
e_address
Manages
m_name
m_id
Manager
m_salary
m_address
m_phone_no
Hires
o_name
o_id
Owner
o_phone_no
o_address
Contains
take
od_id
Order
od_quantity
od_price
od_date
delivery_date
place
give
Customer
cus_name
cus_id
cus_address
cus_phone_no
get
Receipt
amount
r_date
r_id
pay

# Normalization

## Hires

UNF

hires(o_id,o_name,o_address,o_phone_no,m_name,m_id,m_salary,m_address,m_phone_no) 1NF o_phone_no,m_phone_no are multiple valued attributes.

1.o_name,o_address,o_phoneno,m_name,m_id,m_salary,m_address,m_phone_no

2NF

1. o_id,o_name,o_address,o_phone_no

2.m_name,m_id,m_salary,m_address,m_phone_no

3NF

There is no transitive dependency. Relation already in 3NF form.

1. o_id,o_name,o_address,o_phone_no

2.m_name,m_id,m_salary,m_address,m_phoneno.

Table creation

1. o_id,o_name,o_address,o_phone_no, m_id

2.m_name,m_id,m_salary,m_address,m_phoneno.

## Manages

UNF

Manages(m_name,m_id,m_salary,m_address,m_phone_no,e_name,e_id,e_salary,e_address,e_phone_no)

1NF

m_phone_no is a multiple valued attribute.

1.m_name,m_id,m_salary,m_address,m_phone_no,e_name,e_id,e_salary,e_address,e_phone_no

2NF

1.m_name,m_id,m_salary,m_address,m_phone_no.

2.e_name,e_id,e_salary,e_address,e_phoneno

3NF

There is no transitive dependency. Relation already in 3NF form.

1.m_name,m_id,m_salary,m_address,m_phone_no.

2.e_name,e_id,e_salary,e_address,e_phone_no

Table creation

1.m_name,m_id,m_salary,m_address,m_phoneno.

2.e_name,e_id,e_salary,e_address,e_phoneno, **m_id**

## Assigned to

UNF

Assigned to(e_name,e_id,e_salary,e_address,e_phone_no,p_id,p_name,p_price ,p_category, p_quantity)

1NF

There is no  multivalued attribute.

1.e_name,e_id,e_salary,e_address,e_phone_no,p_id,p_name,p_price,p_category, p_quantity

2NF

1.e_name,e_id,e_salary,e_address,e_phone_no

2.p_id,p_name,p_price,p_category,p_quantity

3NF

There is no transitive dependency. Relation already in 3NF form.

1.e_name,e_id,e_salary,e_address,e_phone_no

2.p_id,p_name,p_price,p_category,p_quantity

Table creation

1.e_name,e_id,e_salary,e_address,e_phoneno

2.p_id,p_name,p_price,p_category,p_quantity, **e_id**

**Contain**

UNF

Contains(p_id,p_name,p_price,p_category,p_quantity,od_id ,
od_quantity,od_price,od_date,delivery_date)

1NF

There is no  multivalued attribute.

1. p_id,p_name,p_price,p_category,p_quantity,od_id ,

od_quantity,od_price,od_date,delivery_date 2NF

1. p_id,p_name,p_price,p_category,p_quantity
2. od_id , od_quantity,od_price,od_date,delivery_date

3NF

1. p_id,p_name,p_price,p_category,p_quantity
2. od_id , od_date,delivery_date
3. od_quantity,od_price

Table Creation

1. p_id,p_name,p_price,p_category,p_quantity,
2. od_id , od_date,delivery_date, **uo_id**
3. od_quantity,od_price,uo_id
4. **od_id** , **p_id**

**Place**

UNF

Place(od_id , od_quantity,od_price,od_date,delivery_date,cus_id ,
cus_name.cus_address,cus_phone_no)

1NF

There is no  multivalued attribute.

1. od_id , od_quantity,od_price,od_date,delivery_date,cus_id ,
   cus_name.cus_address,cus_phone_no

2NF

1. od_id , od_quantity,od_price,od_date,delivery_date
2. cus_id , cus_name.cus_address,cus_phone_no

3NF

1. cus_id , cus_name.cus_address,cus_phone_no
2. od_id ,od_date,delivery_date
3. od_quantity,od_price

Table Creation

1. cus_id , cus_name.cus_address,cus_phone_no
2. od_id ,od_date,delivery_date, **uo_id**, **cus_id**
3. od_quantity,od_price,uo_id

**Take**

UNF

Take(e_name,e_id,e_salary,e_address,e_phone_no, od_id ,
od_quantity,od_price,od_date,delivery_date)

1NF

There is no  multivalued attribute.

1. e_name,e_id,e_salary,e_address,e_phone_no, od_id ,
   od_quantity,od_price,od_date,delivery_date

2NF

1. e_name,e_id,e_salary,e_address,e_phone_no
2. od_id , od_quantity,od_price,od_date,delivery_date

3NF

1. e_name,e_id,e_salary,e_address,e_phone_no
2. od_id ,od_date,delivery_date

3. od_quantity,od_price

Table Creation

1. e_name,e_id,e_salary,e_address,e_phone_no
2. od_id ,od_date,delivery_date,**uo_id** , **e_id**
3. od_quantity,od_price,uo_id

**Give**

UNF

Give(amount,r_id, r_date, e_name,e_id,e_salary,e_address,e_phone_no)

1NF

There is no multivalued attribute.

1. amount,r_id, r_date, e_name,e_id,e_salary,e_address,e_phone_no

2NF

1. amount,r_id,r_date
2. e_name,e_id,e_salary,e_address,e_phone_no

3NF

There is no transitive dependency. Relation already in 3NF form.

1. amount,r_id, r_date
2. e_name,e_id,e_salary,e_address,e_phone_no

Table Creation

1. amount,r_id, r_date
2. e_name,e_id,e_salary,e_address,e_phone_no
3. **r_id** , **e_id**

**Get**

UNF

Get(amount,r_id, r_date, cus_id , cus_name.cus_address,cus_phone_no) 1NF

There is no multivalued attribute

1. amount,r_id, r_date, cus_id , cus_name.cus_address,cus_phone_no

2NF

1. amount,r_id, r_date
2. cus_id , cus_name.cus_address,cus_phone_no

3NF

There is no transitive dependency. Relation already in 3NF form.

1. amount,r_id, r_date
2. cus_id , cus_name.cus_address,cus_phone_no Table

Creation

1. amount,r_id, r_date
2. cus_id , cus_name.cus_address,cus_phone_no
3. **cus_id** , **r_id**

**Pay**

UNF

Pay(m_name,m_id,m_salary,m_address,m_phone_no, cus_id , cus_name.cus_address,cus_phone_no)

1NF

m_phone_no is a multivalued attribute.

1. m_name,m_id,m_salary,m_address,m_phone_no, cus_id , cus_name.cus_address,cus_phone_no

2NF

1. m_name,m_id,m_salary,m_address,m_phone_no
2. cus_id , cus_name.cus_address,cus_phone_no

3NF

There is no transitive dependency. Relation already in 3NF form.

1. m_name,m_id,m_salary,m_address,m_phone_no
2. cus_id , cus_name.cus_address,cus_phone_no

Table Creation

1. m_name,m_id,m_salary,m_address,m_phone_no
2. cus_id , cus_name.cus_address,cus_phone_no
3. **m_id** , **cus_id** Temporary Table:

1. o_id,o_name,o_address,o_phone_no, m_id

2.~~m_name,m_id,m_salary,m_address,m_phoneno.~~

3.m_name,m_id,m_salary,m_address,m_phoneno.

4.e_name,e_id,e_salary,e_address,e_phoneno, **m_id**

5.e_name,e_id,e_salary,e_address,e_phoneno

6.p_id,p_name,p_price,p_category,p_quantity, **e_id**

7. p_id,p_name,p_price,p_category,p_quantity

8. od_id ,od_date,delivery_date,**uo_id** , **e_id**

~~9.od_quantity,od_price,uo_id~~

10.cus_id , cus_name.cus_address,cus_phone_no

11.od_id ,od_date,delivery_date, **uo_id**, **cus_id**

12.od_quantity,od_price,uo_id

13.~~e_name,e_id,e_salary,e_address,e_phone_no~~

~~14.od_id ,od_date,delivery_date,**uo_id**~~

15.~~od_quantity,od_price,uo_id~~

17.~~amount,r_id, r_date~~

18.~~e_name,e_id,e_salary,e_address,e_phone_no~~

19.**r_id** , **e_id**

20. amount,r_id, r_date

21.~~cus_id , cus_name.cus_address,cus_phone_no~~

22.**cus_id** , **r_id**

23.~~m_name,m_id,m_salary,m_address,m_phone_no~~

24.~~cus_id , cus_name.cus_address,cus_phone_no~~

25. **m_id , cus_id**

26.**od_id , p_id**

Final Table

1. o_id,o_name,o_address,o_phone_no, **m_id**

2.m_name,m_id,m_salary,m_address,m_phoneno.

3.e_name,e_id,e_salary,e_address,e_phoneno, **m_id**

4.p_id,p_name,p_price,p_category,p_quantity, **e_id**

5.cus_id , cus_name.cus_address,cus_phone_no

6.od_id ,od_date,delivery_date, **uo_id**, **cus_id , e_id**

7.od_quantity,od_price,uo_id

8.**r_id , e_id**

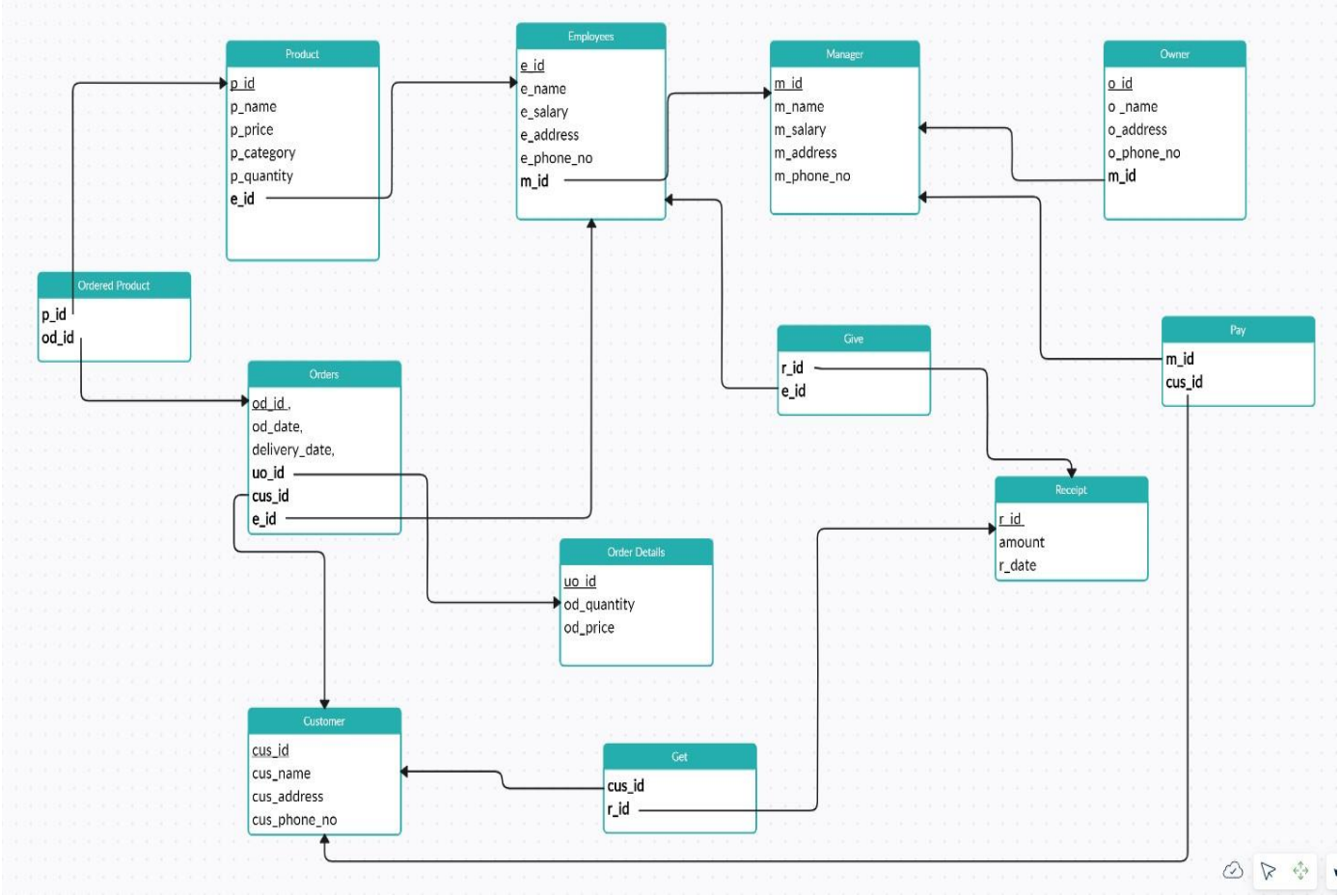
9. amount,r_id, r_date

10.**cus_id , r_id**

11. **m_id , cus_id**

12.**od_id , p_id**

# Schema Diagram



# Table Creation

**Create table:**

1.create table owner(o_id number primary key, o_name varchar2(30), o_address varchar2(30), o_phone_no number(11), m_id number);

2.create table manager(m_id number primary key, m_name varchar2(30), m_salary number, m_address varchar2(30), m_phone_no number(11));

3.create table employee(e_id number primary key, e_name varchar2(30), e_salary number, e_address varchar2(30), e_phone_no number(11), m_id number, constraint chk_salary check(e_salary > 1000));

4.create table product(p_id number primary key, p_name varchar2(30), p_price number, p_category varchar2(30), p_quantity number, e_id number);

5.create table customer(cus_id number primary key, cus_name varchar2(30), cus_address varchar2(30), cus_phone_no number(11));

6.create table orders(od_id number primary key, od_date date, delivery_date date, uo_id number,cus_id number, e_id number);

7.create table order_details(uo_id number primary key, od_quantity number, od_price number);

8.create table give(r_id number, e_id number);

9.create table receipt(r_id number primary key, amount number, r_date date);

10.create table get(cus_id number, r_id number);

11.create table pay(m_id number, cus_id number);

12. create table ordered_product(p_id number, od_id number);

**Altering tables:**

alter table owner add foreign key(m_id) references manager(m_id);

alter table employee add foreign key(m_id) references manager(m_id);

alter table product add foreign key(e_id) references employee(e_id);

alter table orders add foreign key(uo_id) references order_details(uo_id); alter table orders add foreign key(cus_id) references customer(cus_id); alter table orders add foreign key(e_id) references employee(e_id);

alter table give add foreign key(r_id) references receipt(r_id); alter table give add foreign key(e_id) references employee(e_id);

alter table get add foreign key(cus_id) references customer(cus_id); alter table get add foreign key(r_id) references receipt(r_id);

alter table pay add foreign key(m_id) references manager(m_id); alter table pay add foreign key(cus_id) references customer(cus_id);

alter table ordered_product add foreign key(p_id) references product(p_id); alter table ordered_product add foreign key(od_id) references orders(od_id);

screenshots of the created table using describe command:

OWNER Table:

Object Type TABLE Object OWNER

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| OWNER | O_ID | Number | - | - | - | 1 | - | - | - |
| | O_NAME | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | O_ADDRESS | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | O_PHONE_NO | Number | - | 11 | 0 | - | ✓ | - | - |
| | M_ID | Number | - | - | - | - | ✓ | - | - |

1 - 5

MANAGER Table:

Object Type TABLE Object MANAGER

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| MANAGER | M_ID | Number | - | - | - | 1 | - | - | - |
| | M_NAME | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | M_SALARY | Number | - | - | - | - | ✓ | - | - |
| | M_ADDRESS | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | M_PHONE_NO | Number | - | 11 | 0 | - | ✓ | - | - |
| | | | | | | | | | 1 - 5 |

EMPLOYEE Table:

Object Type TABLE Object EMPLOYEE

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| EMPLOYEE | E_ID | Number | - | - | - | 1 | - | - | - |
| | E_NAME | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | E_SALARY | Number | - | - | - | - | ✓ | - | - |
| | E_ADDRESS | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | E_PHONE_NO | Number | - | 11 | 0 | - | ✓ | - | - |
| | M_ID | Number | - | - | - | - | ✓ | - | - |
| | | | | | | | | | 1 - 6 |

PRODUCT Table:

Object Type TABLE Object PRODUCT

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| PRODUCT | P_ID | Number | - | - | - | 1 | - | - | - |
| | P_NAME | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | P_PRICE | Number | - | - | - | - | ✓ | - | - |
| | P_CATEGORY | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | P_QUANTITY | Number | - | - | - | - | ✓ | - | - |
| | E_ID | Number | - | - | - | - | ✓ | - | - |
| | | | | | | | | | 1 - 6 |

CUSTOMER Table:

Object Type TABLE Object CUSTOMER

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| CUSTOMER | CUS_ID | Number | - | - | - | 1 | - | - | - |
| | CUS_NAME | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | CUS_ADDRESS | Varchar2 | 30 | - | - | - | ✓ | - | - |
| | CUS_PHONE_NO | Number | - | 11 | 0 | - | ✓ | - | - |
| | | | | | | | | | 1 - 4 |

ORDERS Table:

Object Type TABLE Object ORDERS

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| ORDERS | OD_ID | Number | - | - | - | 1 | - | - | - |
| | OD_DATE | Date | 7 | - | - | - | ✓ | - | - |
| | DELIVERY_DATE | Date | 7 | - | - | - | ✓ | - | - |
| | UO_ID | Number | - | - | - | - | ✓ | - | - |
| | CUS_ID | Number | - | - | - | - | ✓ | - | - |
| | E_ID | Number | - | - | - | - | ✓ | - | - |
| | | | | | | | | | 1 - 6 |

ORDER_DETAILS Table:

Object Type TABLE Object ORDER_DETAILS

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| ORDER_DETAILS | UO_ID | Number | - | - | - | 1 | - | - | - |
| | OD_QUANTITY | Number | - | - | - | - | ✓ | - | - |
| | OD_PRICE | Number | - | - | - | - | ✓ | - | - |
| | | | | | | | | | 1 - 3 |

RECEIPT Table:

Object Type TABLE Object RECEIPT

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| RECEIPT | R_ID | Number | - | - | - | 1 | - | - | - |
| | AMOUNT | Number | - | - | - | - | ✓ | - | - |
| | R_DATE | Date | 7 | - | - | - | ✓ | - | - |
| | | | | | | | | | 1 - 3 |

GIVE Table:

Object Type TABLE Object GIVE

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| GIVE | R_ID | Number | - | - | - | - | ✓ | - | - |
| | E_ID | Number | - | - | - | - | ✓ | - | - |
| | | | | | | | | | 1 - 2 |

## GET Table:

Object Type TABLE Object GET

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| GET | CUS_ID | Number | - | - | - | - | ✓ | - | - |
| | R_ID | Number | - | - | - | - | ✓ | - | - |

1 - 2

## PAY Table:

Object Type TABLE Object PAY

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| PAY | M_ID | Number | - | - | - | - | ✓ | - | - |
| | CUS_ID | Number | - | - | - | - | ✓ | - | - |

1 - 2

## ORDERED PRODUCT Table:

Object Type TABLE Object ORDERED_PRODUCT

| Table | Column | Data Type | Length | Precision | Scale | Primary Key | Nullable | Default | Comment |
|---|---|---|---|---|---|---|---|---|---|
| ORDERED_PRODUCT | P_ID | Number | - | - | - | - | ✓ | - | - |
| | OD_ID | Number | - | - | - | - | ✓ | - | - |

1 - 2

### Create Sequence:

create sequence seq increment by 1 start with 1 nocache nocycle;

**User creation:**

create user Safin identified by s1a2f3i4n;

grant unlimited tablespace to Safin; **assign**

**roles:**

create role manager; grant create table, create view, create sequence, create user,

create role to manager; grant manager to Safin;

# Data Insertion

OWNER DATA:

insert into owner(o_id, o_name, o_address, o_phone_no, m_id) values(101, 'Mr. O', 'Kuratoli, Dhaka', 01633043297, 102);

| O_ID | O_NAME | O_ADDRESS | O_PHONE_NO | M_ID |
|---|---|---|---|---|
| 101 | Mr. O | Kuratoli, Dhaka | 1633043297 | 102 |

MANAGER DATA:

insert into manager(m_id, m_name, m_salary, m_address, m_phone_no) values(102, 'Mr. M', 30000, 'Banani, Dhaka', 01521754978);

| M_ID | M_NAME | M_SALARY | M_ADDRESS | M_PHONE_NO |
|---|---|---|---|---|
| 102 | Mr. M | 30000 | Banani, Dhaka | 1521754978 |

EMPLOYEE DATA:

insert into employee(e_id, e_name, e_salary, e_address, e_phone_no, m_id) values(201, 'Abul', 7000, 'Azimpur, Dhaka', 01602700367, 102);

insert into employee(e_id, e_name, e_salary, e_address, e_phone_no, m_id) values(202, 'Babul', 9000, 'Kamlapur, Dhaka', 01802300467, 102);

insert into employee(e_id, e_name, e_salary, e_address, e_phone_no, m_id) values(203, 'Cabul', 8000, 'Shahbag, Dhaka', 01302000357, 102);

insert into employee(e_id, e_name, e_salary, e_address, e_phone_no, m_id) values(204, 'Dabul', 5000, 'Farmagate, Dhaka', 01712790367, 102);

insert into employee(e_id, e_name, e_salary, e_address, e_phone_no, m_id) values(205, 'Ebul', 6000, 'Mohammadpur, Dhaka', 01902800367, 102);

| E_ID | E_NAME | E_SALARY | E_ADDRESS | E_PHONE_NO | M_ID |
|---|---|---|---|---|---|
| 201 | Abul | 7000 | Azimpur, Dhaka | 1302700367 | 102 |
| 202 | Babul | 9000 | Kamlapur, Dhaka | 1802300467 | 102 |
| 203 | Cabul | 8000 | Shahbag, Dhaka | 1302000357 | 102 |
| 204 | Dabul | 5000 | Farmagate, Dhaka | 1712790367 | 102 |
| 205 | Ebul | 6000 | Mohammadpur, Dhaka | 1902800367 | 102 |

CUSTOMER DATA:

insert into customer(cus_id, cus_name, cus_address, cus_phone_no) values(301, 'Shaad', 'Mirpur, Dhaka', 01935728398);

insert into customer(cus_id, cus_name, cus_address, cus_phone_no) values(302, 'Asif', 'Rampura, Dhaka', 01843311815);

insert into customer(cus_id, cus_name, cus_address, cus_phone_no) values(303, 'Safin', 'kuratoli, Dhaka', 01876266962);

insert into customer(cus_id, cus_name, cus_address, cus_phone_no) values(304, 'Maria', 'Bashundhara, Dhaka', 01835538098);

insert into customer(cus_id, cus_name, cus_address, cus_phone_no) values(305, 'Sakib', 'Gulshan, Dhaka', 01625347735);

| CUS_ID | CUS_NAME | CUS_ADDRESS | CUS_PHONE_NO |
|---|---|---|---|
| 301 | Shaad | Mirpur, Dhaka | 1935728398 |
| 302 | Asif | Rampura, Dhaka | 1843311815 |
| 303 | Safin | kuratoli, Dhaka | 1876266962 |
| 304 | Maria | Bashundhara, Dhaka | 1835538098 |
| 305 | Sakib | Gulshan, Dhaka | 1625347735 |

ORDERS DATA:

insert into orders(od_id, od_date, delivery_date, uo_id, cus_id, e_id) values(601, '1-JAN-2022', '1-JAN-2022', 701, 301, 201);

insert into orders(od_id, od_date, delivery_date, uo_id, cus_id, e_id) values(602, '10-JAN-2022', '10-JAN-2022', 702, 302, 202);

insert into orders(od_id, od_date, delivery_date, uo_id, cus_id, e_id) values(603, '3-NOV-2022', '3-NOV-2022', 703, 303, 202);

insert into orders(od_id, od_date, delivery_date, uo_id, cus_id, e_id) values(604, '5-MAR-2022', '5-MAR-2022', 704, 304, 203);

insert into orders(od_id, od_date, delivery_date, uo_id, cus_id, e_id) values(605, '6-AUG-2022', '6-AUG2022', 705, 305, 205);

| OD_ID | OD_DATE | DELIVERY_DATE | UO_ID | CUS_ID | E_ID |
|---|---|---|---|---|---|
| 601 | 01-JAN-22 | 01-JAN-22 | 701 | 301 | 201 |
| 602 | 10-JAN-22 | 10-JAN-22 | 702 | 302 | 202 |
| 603 | 03-NOV-22 | 03-NOV-22 | 703 | 303 | 202 |
| 604 | 05-MAR-22 | 05-MAR-22 | 704 | 304 | 203 |
| 605 | 06-AUG-22 | 06-AUG-22 | 705 | 305 | 205 |

ORDER_DETAILS DATA:

insert into order_details(uo_id, od_quantity, od_price) values(701, 2, 260); insert into order_details(uo_id, od_quantity, od_price) values(702, 1, 2400); insert into order_details(uo_id, od_quantity, od_price) values(703, 3, 1080); insert into order_details(uo_id, od_quantity, od_price) values(704, 1, 2700); insert into order_details(uo_id, od_quantity, od_price) values(705, 3, 2040);

| UO_ID | OD_QUANTITY | OD_PRICE |
|---|---|---|
| 701 | 2 | 260 |
| 702 | 1 | 2400 |
| 703 | 3 | 1080 |
| 704 | 1 | 2700 |
| 705 | 3 | 2040 |

PRODUCT DATA:

insert into product(p_id, p_name, p_price, p_category, p_quantity, e_id) values(401, 'French toast', 130, 'Bakery item', 44, 201);

insert into product(p_id, p_name, p_price, p_category, p_quantity, e_id) values(402, 'Tiamaria cake', 2400, 'Cakes', 13, 202);

insert into product(p_id, p_name, p_price, p_category, p_quantity, e_id) values(403, 'Fudge cake', 2700, 'Cakes', 9, 203);

insert into product(p_id, p_name, p_price, p_category, p_quantity, e_id) values(404, 'Box of bon bons', 680, 'Chocolates', 17, 204);

insert into product(p_id, p_name, p_price, p_category, p_quantity, e_id) values(405, 'Savoury', 360, 'Deserts', 23, 205);

| P_ID | P_NAME | P_PRICE | P_CATEGORY | P_QUANTITY | E_ID |
|---|---|---|---|---|---|
| 401 | French toast | 130 | Bakery item | 44 | 201 |
| 402 | Tiamaria cake | 2400 | Cakes | 13 | 202 |
| 403 | Fudge cake | 2700 | Cakes | 9 | 203 |
| 404 | Box of bon bons | 680 | Chocolates | 17 | 204 |
| 405 | Savoury | 360 | Deserts | 23 | 205 |

RECEIPT DATA:

```
insert into receipt(r_id, amount, r_date) values(501, 260, '1-JAN-2022'); insert
into receipt(r_id, amount, r_date) values(502, 2400, '10-JAN-2022'); insert
into receipt(r_id, amount, r_date) values(503, 1080, '3-NOV-2022'); insert into
receipt(r_id, amount, r_date) values(504, 2700, '5-MAR-2022');
insert into receipt(r_id, amount, r_date) values(505, 2040, '6-AUG-2022');
```

| R_ID | AMOUNT | R_DATE |
|---|---|---|
| 501 | 260 | 01-JAN-22 |
| 502 | 2400 | 10-JAN-22 |
| 503 | 1080 | 03-NOV-22 |
| 504 | 2700 | 05-MAR-22 |
| 505 | 2040 | 06-AUG-22 |

GIVE Table DATA:

```
insert into give(r_id, e_id) values(501, 201); insert
into give(r_id, e_id) values(502, 202); insert into
give(r_id, e_id) values(503, 202); insert into
give(r_id, e_id) values(504, 203);
insert into give(r_id, e_id) values(505, 205);
```

| R_ID | E_ID |
|---|---|
| 501 | 201 |
| 502 | 202 |
| 503 | 202 |
| 504 | 203 |
| 505 | 205 |

GET Table DATA:

insert into get(cus_id, r_id) values(301, 501); insert into get(cus_id, r_id) values(302, 502); insert into get(cus_id, r_id) values(303, 503); insert into get(cus_id, r_id) values(304, 504);

insert into get(cus_id, r_id) values(305, 505);

| CUS_ID | R_ID |
|---|---|
| 301 | 501 |
| 302 | 502 |
| 303 | 503 |
| 304 | 504 |
| 305 | 505 |

PAY Table DATA:

insert into pay(m_id, cus_id) values(102, 301); insert into pay(m_id, cus_id) values(102, 302); insert into pay(m_id, cus_id) values(102, 303); insert into pay(m_id, cus_id) values(102, 304); insert into pay(m_id, cus_id) values(102, 305);

| M_ID | CUS_ID |
|---|---|
| 102 | 301 |
| 102 | 302 |
| 102 | 303 |
| 102 | 304 |
| 102 | 305 |

ORDERED PRODUCT Table DATA:

insert into ordered_product(p_id, od_id) values(401, 601); insert into ordered_product(p_id, od_id) values(402, 602); insert into ordered_product(p_id, od_id) values(403, 603); insert into ordered_product(p_id, od_id) values(404, 604); insert into ordered_product(p_id, od_id) values(405, 605);

| P_ID | OD_ID |
|---|---|
| 401 | 601 |
| 402 | 602 |
| 403 | 603 |
| 404 | 604 |
| 405 | 605 |

# Query Writing

**Single row function:** Single row functions are the one who work on single row and return one output per row. For example, length and case conversion functions are single row functions.

1. Display the E_NAME and E_SALARY number by joining the columns using concatenation function.
   Ans: select concat(E_NAME, E_SALARY) as Employee_info from employee;

| EMPLOYEE_INFO |
|---|
| Abul7000 |
| Babul9000 |
| Cabul8000 |
| Dabul5000 |
| Ebul6000 |

2. Display Today's date and time.
   Ans: select sysdate from dual;

| SYSDATE |
|---|
| 25-DEC-22 |

- **Group function:** Group functions are built-in SQL functions that operate on groups of rows and return one value for the entire group. These functions are: COUNT, MAX, MIN, AVG, SUM, DISTINCT

1. Display maximum salary from all employees using MAX function.
   Ans: select MAX(E_SALARY) from employee;

| MAX(E_SALARY) |
|---|
| 9000 |

2. Display the sum of products price using the SUM function.
   Ans: select SUM(p_price) from product;

| SUM(P_PRICE) |
|---|
| 6270 |

**Subquery:** A subquery is a query that is nested inside a SELECT, INSERT, UPDATE, or DELETE statement, or inside another subquery. A subquery can be used anywhere an expression is allowed. In this example, a subquery is used as a column expression named MaxUnitPrice in a SELECT statement.

1. Display the products name and price where price is greater than Box of bon bons.

   Ans: select p_name, p_price from product where p_price > (select p_price from product where p_name='Box of bon bons');

| P_NAME | P_PRICE |
|---|---|
| Tiamaria cake | 2400 |
| Fudge cake | 2700 |

2. Display the name and salary of employees where salary is higher than the salary of Dabul.

   Ans: select e_name, e_salary from employee where e_salary > (select e_salary from employee where e_name = 'Dabul');

| E_NAME | E_SALARY |
|---|---|
| Abul | 7000 |
| Babul | 9000 |
| Cabul | 8000 |
| Ebul | 6000 |

**Joining:** A SQL Join is a special form of generating a meaningful data by combining multiple tables relate to each other using a "Key". Typically, relational tables must be designed with a unique column and this column is used to create relationships with one or more other tables. When need a result-set that includes related rows from multiple tables, need to use SQL join on this column

1. Join the table orders and order details where uo_id of both table are same.

   Ans: select orders.od_date, orders.delivery_date, order_details.od_quantity, order_details.od_price, orders.uo_id, order_details.uo_id from orders, order_details where orders.uo_id = order_details.uo_id;

| OD_DATE | DELIVERY_DATE | OD_QUANTITY | OD_PRICE | UO_ID | UO_ID |
|---|---|---|---|---|---|
| 01-JAN-22 | 01-JAN-22 | 2 | 260 | 701 | 701 |
| 10-JAN-22 | 10-JAN-22 | 1 | 2400 | 702 | 702 |
| 03-NOV-22 | 03-NOV-22 | 3 | 1080 | 703 | 703 |
| 05-MAR-22 | 05-MAR-22 | 1 | 2700 | 704 | 704 |
| 06-AUG-22 | 06-AUG-22 | 3 | 2040 | 705 | 705 |

2. Join the table orders and employee where e_id of both table are same

   Ans: select employee.e_name, employee.e_id, employee.e_address, orders.od_id from employee, orders where orders.e_id = employee.e_id;

| E_NAME | E_ID | E_ADDRESS | OD_ID |
|---|---|---|---|
| Abul | 201 | Azimpur, Dhaka | 601 |
| Babul | 202 | Kamlapur, Dhaka | 602 |
| Babul | 202 | Kamlapur, Dhaka | 603 |
| Cabul | 203 | Shahbag, Dhaka | 604 |
| Ebul | 205 | Mohammadpur, Dhaka | 605 |

**View:** In SQL, a view is a virtual table based on the result-set of an SQL statement.A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database.Add SQL statements and functions to a view and present the data as if the data were coming from one single table.

A view is created with the CREATE VIEW statement.

1. Create a view of product where price is more than 1500 tk.
   Ans: create view price_view as select p_name, p_price from product where p_price > 1500;

| P_NAME | P_PRICE |
|---|---|
| Tiamaria cake | 2400 |
| Fudge cake | 2700 |

2. Create a view of  employee salary where salary is greater than 5000 tk;

   Ans: create view emp_salary as select e_name, e_salary from employee where e_salary > 5000;

| E_NAME | E_SALARY |
|---|---|
| Abul | 7000 |
| Babul | 9000 |
| Cabul | 8000 |
| Ebul | 6000 |

# Relational Algebra

1. 1Find the name of the customer where customer id is 302

   Ans: $\pi_{Cus\_name}(\sigma_{cus\_id = '302'}(customer))$

2. Find the customer address were customer phone number is 1843311815

   Ans: $\pi_{Cus\_address}(\sigma_{cus\_phone\_no = '1843311815'}(customer))$

3. Find the receipt id where receipt date is '10-JAN-2022'

   Ans: $\pi_{r\_id}(\sigma_{r\_date = '10\text{-}JAN\text{-}2022'}(receipt))$

4. Find the names of the employees who earn more than 6000

   Ans: $\pi_{e\_name}(\sigma_{e\_salary > 6000}(employee))$

5. Find order id where delivery date is '5-MAR-2022'

   Ans: $\pi_{o\_id}(\sigma_{delivery\_date = '5\text{-}MAR\text{-}2022'}(employee))$

# Conclusion

The pastry shop management system project's scenario Gives off a brief overview of the whole project. IT gives a generic idea of what the entities are and about their attributes. The main essence of the project Is found in the ER diagram and before table creation, normalization was done to avoid redundancy. A schema diagram was created to identify the related data sets, the predesigned tables were then created based on related data sets and finally, on the insertion part data was being stored. Some Queries and relational algebra were applied on the implemented data base to test the Management system's data integrity, which proved to be successful. By this effective database project, the organizational data accessibility will be lot quicker and efficient. Both the customers and the shop will be able to save their time and effort by using this complete pasty shop management system. The project is planned to improve by ensuring more security to protect the data. Moreover , the project is made in such a way that further customization can be added effortlessly in the already existing database.